



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/053,666

01/24/2002

Wolfgang Billinger

P67552US0

8422

136 7590 05/07/2009

JACOBSON HOLMAN PLLC
400 SEVENTH STREET N.W.
SUITE 600
WASHINGTON, DC 20004

EXAMINER

DINH, TIEN QUANG

ART UNIT

PAPER NUMBER

3644

MAIL DATE

DELIVERY MODE

05/07/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/053,666	Applicant(s) BILLINGER ET AL.	
	Examiner Tien Dinh	Art Unit 3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 19-28, 30 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) 24, 25 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15, 19-23, 26, 27, 30 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15, 19, 21-23, 26, 27, 30 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirahara et al (6,234,423) and in view of Padden 5224670.

Hirahara discloses a fitting (13 made up of parts 13a,b), Moveable Part 11, 14, 15 in combination and illustrated in Figure 10 #13a&b connect #11/14/15 to the tail of the aircraft (see Figure 3); both skins 11, 12 and the spar 13 are bonded by a pasty thermosetting adhesive to together form a single structure the box-structure airfoil 10 comprises a composite material upper skin 11 forming a top surface of the airfoil, a composite material lower skin 12 forming a bottom surface of the airfoil, and a composite material spar 13 (see Col. 4, lines 50-60) made from CFRP (Carbon Fiber Reinforced Polymer, see Col. 5, lines 33-41). The movable part (#11-15) is an elevator (see figure 3). The fact that Hirahara et al do not employ a resin transfer molding method is of no consequence since this limitation is a product by process limitation. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even through the prior product was made by a different process. The movable part (#11-15) is control surface (see Figure 3). Both skins 11, 12 and the spar 13 are bonded by a

Art Unit: 3644

pastly thermosetting adhesive to together form a single structure. (Integral) Plus to make things integral is a routine step one skilled in the art would have used to make a stronger structure.

The box-structure airfoil 10 comprises a composite material upper skin 11 forming a top surface of the airfoil, a composite material lower skin 12 forming a bottom surface of the airfoil, and a composite material spar 13 (see Col. 4, lines 50-67) made from CFRP (Carbon Fiber Reinforced Polymer, see Col. 5, lines 33-41). The material used to make the airfoil 10 has reactive material since it is CFRP.

The fitting is imbedded in the recess as shown in figures 1 and 2. The upper covering layer and lower covering layer is 11, 12 respectively. The fitting is inbetween them. See figures 1 and 2. The indentation in the moveable part is readily seen in figure 2.

Re claim 30, since the fitting and movable parts are made out of the same material, CFRP, the thermal expansion coefficient is the same.

Hirahara does not disclose bearing.

A **bearing** is a device to permit constrained relative motion between two parts, typically rotation or linear movement

The examiner takes OFFICIAL NOTICE that bearings are notoriously well known means to permit constrained relative motion between a structural and a movable part (see for examle www.wikipedia.org).

It would have been obvious to one having ordinary skill in the art, at the time the invention was made to use a bearing to permit constrained relative motion between the elevator

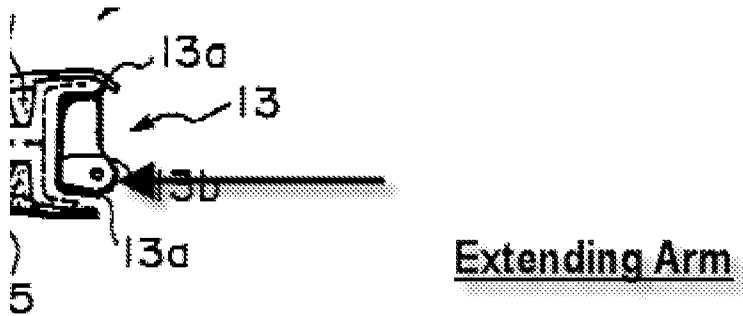
Art Unit: 3644

and the tail. Applicant has not challenged that bearings are well known and is now admitted prior art.

If applicant is not saying bearings and bearing surfaces are not well known and challenges the official notice, this seems too late. The examiner would also like to point out that Padden clearly shows bearing surfaces in figures 1, 2, 4, and 7 that receive inherently bearings. Hence, it would have been obvious to a person skilled in the art at the time the invention was made to have used bearings and bearing surfaces in Hirahara's system as taught by Padden to allow the control surfaces to pivot with respect to the aircraft.

The examiner maintains that the budged-out portion (where number 13b is pointed to in figure 1) is an arm extended outwardly in a direction away from the movable part mounting structure. Plus, the integral fitting 13 has a movable part mounting structure which can be the part 13a. The structural component connecting part so as to connect the movable part with the structural component is part 13b (which is where the arm is). Although Hirahara et al doesn't have a number to shown the aperture on the arm, it is clearly shown in figure 1 that the aperture is where the movable part 11, 14, 15 is connected to the structural component (or wing) of the aircraft. The aperture defines a bearing surface having bearings. Since the movable surface 11, 14, 15 is pivotable, the bearing is located in the aperture so that the movable surface can pivot with respect to the structural component. Hirahara et al teaches the use of glue to secure the movable parting mounting structure to the movable part. See column 5, lines 23-32.

Art Unit: 3644



RE claims 35 and 36, the second arm is clearly shown in figure 2. The fitting 13 has many arms. The articulation points are where the bearings are fitted inside the apertures. Since the apertures are parallel to each other, the articulation points are parallel to the other articulation points. Padden also shows multiple arms in figures 1-2, 4-7. It would have been obvious to one skilled in the art at the time the invention was made to have used multiple arms that are parallel to other another to allow the control surfaces to pivot with respect to the aircraft more efficiently.

Although, the examiner feels that Hirahara et al teaches what has been claimed, the examiner also rejects the claims in view of Padden. Padden clearly teaches fittings 4, 5, 6, that have arms (first, second, third, etc) with apertures 11-14 are well known. Arms are also shown in figure 2 with apertures. A person skilled in the art would have used integral fittings with arms in Hirahara et al as taught by Padden to allow better control of the movable part.

3. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirahara as modified by Padden 5224670 in view of Koppelman et al (3,102,559). Hirahara does not disclose using nylon as a reactive material. Koppelman discloses a composite material formed by impregnating woven structure made of nylon fibers with a thermosetting resin (see col. 14,

Art Unit: 3644

line 22). It would have been obvious to use nylon as the reactive material since nylon allows for improved tensile strengths with relatively high compression strength. Furthermore, it has been held that to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) (selection of a known plastic to make a container of a type made of plastics prior to the invention was held to be obvious.)

Response to Arguments

Applicant again argues that the spar 13 does not include a bulged-out portion or arm. The examiner respectfully disagrees with applicant's conclusion. As seen above, there is a bulged-out portion or arm shown in figure 1 of Hirahara. Portions 13a and 13b formed the hinges so that airfoil/elevator 10 can pivot with respect to the aircraft. How else would the elevator 10 pivots with respect to the aircraft? Applicant also has brought forth the declaration by Mr. Kaufmann to substantiate his argument that there are no hinges. Even though Hirahara doesn't mentioned the term "hinge", it is clearly seen in figure 1 of his disclosure that there are hinges. The hinges are also shown in figure 2.

Applicant also said that Hirahara doesn't disclose an extending arm. The examiner again disagrees. Hirahara clearly shows an extending arm in figure 1. The applicant should also realize that Paden also shows extending arms. See his figures.

Applicant on page 15 of the arguments seemed to now argue that Hirahara doesn't teach a bearing. Applicant has not challenged the examiner's official notice in office action mailed

Art Unit: 3644

2/2/2007 but has now seemed to challenge it now. Even though Hirahara doesn't mentioned the terms bearing surfaces or bearings, it seemed quite clear to one skilled in the art that in figure 1 of Hirahara, that the hole in element 13a and 13b are bearing surfaces and that the bearings go through or in this hole so that the elevator 10 can pivot with respect to the aircraft. The examiner also points out that Padden clearly shows bearing surfaces in figures 1, 2, 4, and 7. The bearings go into the bearing surfaces. Hence, a person skilled in the art would have used bearings and bearing surfaces in Hirahara's system as taught by Padden to allow the control surfaces to pivot with respect to the aircraft.

In response to applicant's arguments and Mr. Kaufman's 2007 declaration that "the hinges of Hirahara which are sued to connect the spar to the aircraft structure are not made, nor discloses as being made, of a composite material at all, the examiner would like to point out column 4, lines 54 of Hirahara, which states "composite material spar 13."

In response to applicant's argument that Padden does not teach composite materials, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). This reference was used to reinforce the examiner's assertion that extending arms with bearings and bearing surfaces are well known. Mr. Billinger's declaration has been considered but clearly does not overcome the rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tien Dinh whose telephone number is 571-272-6899. The examiner can normally be reached on 12-8.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on 571-272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3644

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tien Dinh/

Primary Examiner, Art Unit 3644